

AB-308U

10/731,551

IN THE CLAIMS:

The status and content of each claim follow.

1. (withdrawn) A method for treating a patient with angina pectoris, comprising:  
providing a miniature leadless implantable stimulator with at least one electrode and with a size and shape suitable for placement of the entire stimulator adjacent to a nerve;  
implanting the stimulator adjacent to at least one tissue influencing the angina pectoris of the patient, which tissue is at least one of an intercostal nerve and an intercostal nerve branch;  
providing operating power to the stimulator;  
using an external appliance to transmit stimulation parameters to the stimulator;  
receiving the stimulation parameters at the stimulator;  
generating stimulation pulses in accordance with the stimulation parameters, which pulses are generated by the stimulator;  
delivering stimulation pulses via the stimulator to the at least one of the intercostal nerves and intercostal nerve branches influencing angina pectoris as a treatment for angina pectoris.
2. (withdrawn) The method of Claim 1 further comprising generating and delivering excitatory stimulation pulses to at least one of the intercostal nerves and the intercostal nerve branches.

AB-308U

10/731,551

3. (withdrawn) The method of Claim 1 further comprising generating and delivering stimulation pulses of less than about 15 mA to at least one of the intercostal nerves and the intercostal nerve branches.

4. (withdrawn) The method of claim 1 wherein the implantable stimulator further comprises at least one sensor and the method further comprises sensing at least one condition of the patient.

5. (withdrawn) The method of claim 4 wherein the at least one sensed condition is used to adjust the stimulation parameters.

6. (withdrawn) The method of claim 5 wherein the parameter adjustment is performed using the at least one external appliance.

7. (withdrawn) The method of claim 5 wherein the parameter adjustment is performed by the implantable stimulator.

8. (withdrawn) The method of Claim 1 further comprising providing at least one sensor; using the at least one sensor to sense a physical condition; and adjusting the stimulation parameters based on the sensed condition.

AB-308U

10/731,551

9. (withdrawn) A method for treating a patient with angina pectoris, comprising:
- providing a miniature implantable stimulator with at least one electrode and with a size and shape suitable for placement of the at least one electrode adjacent to a nerve;
  - implanting the at least one electrode near at least one tissue influencing the angina pectoris of the patient, which tissue is at least one of an intercostal nerve and an intercostal nerve branch;
  - providing operating power to the stimulator;
  - using an external appliance to transmit stimulation parameters to the stimulator;
  - receiving the stimulation parameters at the stimulator;
  - generating stimulation pulses in accordance with the stimulation parameters, which pulses are generated by the stimulator;
  - delivering stimulation pulses via the stimulator and the at least one electrode to the at least one of the intercostal nerves and intercostal nerve branches influencing angina pectoris as a treatment for angina pectoris;
  - wherein delivering stimulation pulses further comprising generating and delivering excitatory stimulation pulses to at least one of the intercostal nerves and the intercostal nerve branches.
10. (withdrawn) The method of claim 9 wherein the at least one electrode is positioned on a lead, which lead is up to about 150 mm long.

AB-308U

10/731,551

11. (withdrawn) The method of Claim 9 wherein said excitatory stimulation pulses have a frequency less than 100 Hz.

12. (withdrawn) The method of Claim 9 further comprising generating and delivering stimulation pulses of less than about 15 mA to at least one of the intercostal nerves and the intercostal nerve branches.

13. (withdrawn) The method of claim 9 wherein the implantable stimulator further comprises at least one sensor and the method further comprises sensing at least one condition of the patient.

14. (withdrawn) The method of claim 13 wherein the at least one sensed condition is used to adjust the stimulation parameters.

15. (withdrawn) The method of claim 14 wherein the parameter adjustment is performed using the at least one external appliance.

16. (withdrawn) The method of claim 14 wherein the parameter adjustment is performed by the implantable stimulator.

17. (withdrawn) The method of Claim 9 further comprising:  
providing at least one sensor;

AB-308U

10/731,551

using the at least one sensor to sense a physical condition; and  
adjusting the stimulation parameters based on the sensed condition.

18. (previously presented) A method of using an implantable electrical stimulator to treat angina pectoris, comprising electrically stimulating an intercostal nerve or intercostal nerve branch with an implanted stimulator so as to treat said angina pectoris, wherein said stimulating comprising electrical stimulation pulses at a frequency less than 100 Hz.

19. (previously presented) The method of Claim 18, wherein said stimulator is a self-contained unit that is sized and shaped for placement of the entire stimulator adjacent to a nerve, said method further comprising implanting said entire stimulator adjacent said intercostal nerve or intercostal nerve branch.

20. (previously presented) The method of Claim 18, further comprising sensing one or more aspects of a patient's condition and adjusting electrical stimulation provided with said stimulator in response thereto.

21. (previously presented) The method of Claim 20, wherein said at least one aspect of a patient's condition is any of blood oxygen level, electrical activity of the patient's heart, patient activity level, respiratory rate, medication level, neurotransmitter level, hormone level, interleukin level, cytokine level, lymphokine level, chemokine level, growth factor level and enzyme level.

AB-308U

10/731,551

22. (withdrawn) A method of using an implantable electrical stimulator to treat angina pectoris, comprising electrically stimulating an intercostal nerve or intercostal nerve branch with an implanted stimulator so as to treat said angina pectoris;

wherein said stimulating comprises applying a series of inhibitory electrical stimulation pulses.

23. (withdrawn) The method of Claim 22, further comprising, after applying said series of inhibitory electrical stimulation pulses, sensing any change in sympathetic firing rate and adjusting electrical stimulation applied with said implanted stimulator in response to any sensed change in sympathetic firing rate.

24. (previously presented) The method of Claim 18, further comprising implanting said stimulator between two of a patient's ribs.

25. (previously presented) The method of Claim 24, wherein said two ribs are respectively located at T1, T2 or T3.

26. (previously presented) The method of Claim 18, further comprising using two or more implanted stimulators to treat said angina pectoris.

AB-308U

10/731,551

27. (previously presented) The method of Claim 26, wherein each of said two or more implanted stimulators stimulates a different intercostal nerve or intercostal nerve branch.

28. (withdrawn) A method of using an implantable electrical stimulator to treat angina pectoris, comprising alleviating symptoms of said angina pectoris using said stimulator that disrupts pain signals associated with angina pectoris by applying electrical stimulation to any of afferent fibers along cardiac sympathetic nerves, stellate ganglia, afferent fibers along cardiac parasympathetic nerve fibers, superior cervical (vagal) cardiac nerve, inferior cervical (vagal) cardiac nerve, atrioventricular node or ventricles.

29. (withdrawn) The method of claim 22, wherein said inhibitory stimulation pulses have a frequency greater than 100 Hz.

30. (previously presented) The method of claim 18, further comprising stimulating with said pulses at a frequency less than 50 Hz.

31. (previously presented) The method of claim 18, further comprising stimulating with said pulses at less than 15 mA.